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Research Product 88-01

Training Support Package for  
Moving Target Engagement  
with Existing Ranges and Special Devices

ARI Field Unit at Fort Benning, Georgia  
Training Research Laboratory

January 1988

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U. S. Army Research Institute for the Behavioral and Social Sciences

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# U. S. ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES

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Litton Computer Services, Litton Systems Inc.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report presents a program of instruction for the engagement of moving personnel targets with the service rifle. It was designed for use by the Army Training Center (ATC) to teach Infantry One Station Unit Training (OSUT) soldiers. Instruction is situationally focused. It is oriented for application on existing ranges and facilities at Fort Benning, Georgia, in conjunction with available special training devices. Utilization of the devices described and discussed within the recommended training program will cost effectively (Continued)		

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ARI Research Product 88-01

20. ABSTRACT (Continued)

increase targets hit on the Defense Test Range (DTR). Instructor requirements remain unchanged, but nominal increases in training time and ammunition requirements are necessary. Detailed lesson outlines and hard copy vu-graphs are included. *7-2151*



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Research Product 88-01

**Training Support Package for  
Moving Target Engagement  
with Existing Ranges and Special Devices**

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ARI Field Unit at Fort Benning, Georgia  
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Education and Training

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## FOREWORD

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There have been 23 published research products relating to rifle marksmanship since 1978. The majority of published research has focused on the Basic Rifle Marksmanship (BRM) program and skills for the engagement of stationary targets. This research has been critical in the evaluation of the effectiveness of training rifle skills essential to the soldier. The results of these efforts have improved overall performance of soldiers by approximately 30% in the engagement of stationary targets.

The battlefield has many personnel targets, both stationary and moving. Shooting moving personnel targets represents an equally important skill for the soldier. The research effort described in this report was monitored by the Army Research Institute's Fort Benning Field Unit, whose mission is to conduct research and development of training and training technology using Infantry combat systems and problems as the vehicles. The major focus is on the field experimentation within the infantry arena with the goal of obtaining results that can be generalized to similar systems/problems in other segments of the Army or other services. Primary emphasis is in the areas of training systems/training technology, team training, and weapons systems training, all to improve the performance of soldiers and units. The research task that supports this mission is titled "Developing Training for Individual and Crew-Served Weapons" and is organized under the "Train the Force" program area. Providing sponsorship for the research was the United States Army Infantry School (USAIS) under letters of agreement "Joint Efforts on Improved Training for Moving Target Engagement and Other Advanced Marksmanship Skills," dated 20 December 1984. Presentations on the work described in this report were made to USAIS in December 1986. It is expected that the research findings will be used to revise current training methods. Recommended revisions to training are expected to be implemented in the next Advanced Rifle Marksmanship (ARM) Program of Instruction (POI).



EDGAR M. JOHNSON  
Technical Director

TRAINING SUPPORT PACKAGE FOR MOVING TARGET ENGAGEMENT WITH  
EXISTING RANGES AND SPECIAL DEVICES

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TRAINING SUPPORT PACKAGE FOR  
MOVING TARGET ENGAGEMENT  
WITH EXISTING RANGES AND SPECIAL DEVICES

INTRODUCTION

Survival on the battlefield may depend upon a soldier's ability to engage moving targets with his rifle. The teaching of marksmanship skills is the responsibility of all leaders, especially at the initial entry level. It is here that soldiers learn fundamental rifle skills that will be used throughout their careers. Every attempt should be made to train the soldier to master these critical skills cost effectively. In support of the U.S Army Infantry School (USAIS), the Army Research Institute (ARI) and its current resident contractor, Litton Computer Services, conducted research to identify both immediate and long range improvements to moving target training (Hunt, Parish, Martere, Osborne & Evans, Technical Report, In press).

Major findings of this training analysis were that the existing program of instruction (POI) was complex and inadequate. The existing program did not include a formal test with established standards, with the goal to improve individual performance among soldiers undergoing training. The additional skills required to engage moving targets effectively were not given the needed emphasis. Moving target engagement skills of target detection, quick reaction, lead rules, rapid magazine change and immediate action must be taught correctly and practiced to ensure proficiency and confidence. Significant improvements to this end can be made using current facilities and available training device technology. In addition to POI modification, personnel selected to perform as principal rifle marksmanship instructors should receive formal training in marksmanship techniques.

PROGRAM DEVELOPMENT

All USAIS institutional training programs related to the engagement of moving targets tasks were reviewed as a basis for the development of an improved training program. This review included specific periods of the Basic Rifle Marksmanship (BRM) program and moving target engagement periods of the Advanced Rifle Marksmanship (ARM) program. Only pertinent skill tasks in the BRM program that are required for moving target engagement were reviewed and analyzed.

Skills found in the BRM program relevant to ARM moving target engagement on the Defense Test Range (DTR) equipped with the Remoted Target System (RETS) include target detection, rapid magazine change, and immediate action. The Infantry One Station Unit Training (OSUT) soldier is taught these critical skills in the third and fourth week of his training cycle. Difficulties in performing these tasks are evident during ARM, which is currently conducted in the eighth and ninth weeks of the OSUT program. Based on this review it is proposed that specific periods of primary instruction or concurrent training periods be devoted to target detection, rapid magazine changes, and immediate action. It is further recommended that a skill proficiency test be administered prior to firing on the DTR RETS Range. The test should evaluate the soldier's proficiency to perform these tasks to standard.



Moving target training in the current ARM Program of Instruction (POI) was found to have such a complex method of determining proper lead rules as to inhibit effective target engagement. These rules coupled with the lack of emphasis on quick reaction to targets of opportunity and poorly prepared fighting positions practically nullified the soldier's attempt to succeed.

It is proposed that the DTR POI be modified to include emphasis on foxhole preparation, quick reaction, and use of the single lead rule as developed by ARI. The standard foxhole supported position must be modified to allow for freedom of body movement using sandbags as a pivot point for the rifle. The upper body of the firer must be unrestrained during tracking of moving targets and supported for engagement of stationary targets. This is accomplished through the proper positioning of the available sandbags while in the foxhole position. Assistant Instructors (AIs) should assist the soldier in properly preparing his foxhole position prior to the commencement of the exercise. The soldier should be reminded that a successful engagement of moving targets is quick reaction to targets of opportunity. The AIs should instill confidence and motivate the soldier to increase his state of readiness and anticipation. AIs should be positioned well to the rear of the foxhole to preclude vocal and physical assistance to the soldier during firing.

The five lead rules now being taught as part of the ARM POI should be replaced with a simple single lead rule. Currently soldiers are being taught to determine target speed, direction, and use of the front sight post to estimate range. After estimating these three variables the soldier must then determine and apply one of five lead rules appropriate for the moving target he is engaging. Target exposures are 3 to 5 seconds depending on the target's distance from the firing position. Short target exposures coupled with the requirement to evaluate and apply the selected lead rule causes confusion and stress, and detracts from a successful target hit. The single lead rule eliminates the complex perceptual requirements of multiple lead rules. Proper application of the single lead rule will result in hits against targets of opportunity at distances up to 200 meters (Osborne & Smith, 1985). While distance and target speed will change the point of impact, a target hit will be achieved with a zeroed rifle and the proper application of the four fundamentals of marksmanship using the single lead rule.

It is proposed that a standard be established for qualification during ARM moving target training. Military Occupational Specialty (MOS) 11B and 11M OSUT soldier records should reflect meeting the standard as set by the (USAIS) and the Army Training Center (ATC). Without a standard, the soldier's performance in hitting moving targets is meaningless. Establishing a standard will reinforce the importance of this critical combat skill.

Additionally, instructor initiative and enthusiasm would be enhanced through revision of the current rotating station technique. Currently students rotate through three stations in a round-robin method. Instructors are detailed to train each group at their assigned station. It is proposed that instructor competitiveness would be instilled if he trained his assigned group at each station. The effectiveness of his training would be evaluated through the computerized target hit results of his students on the DTR course.

The preferred sequence of training would be use of the Aid to Improved Marksmanship (AIM) in applying the single lead rule, Multipurpose Arcade Combat

Simulator (MACS), Weaponeer II, Location of Miss and Hit device (LOMAH), Dry Fire Mover, Rapid Magazine Change and Immediate Action. The target detection station currently being taught as part of the DTR POI should be eliminated. OSUT soldiers are taught target detection during BRM. Reference to the importance of target detection during AIM instruction is sufficient. Elimination of this station will provide the necessary time period for the reinforcement of the more critical skills of rapid magazine change and immediate action.

Special devices will enhance rifle marksmanship training. Proper sequential utilization is required. As soldiers attain knowledge and expertise, their abilities to hit moving targets will increase significantly. Expertise in moving target engagements will significantly increase hits on stationary targets.

Time may be reduced through device use in place of current live-fire time periods. Speed and efficiency will dictate time reductions. Requirements for refires will be minimized. POIs which currently include lectures, demonstrations, and live fire can be modified or replaced.

The MACS and Weaponeer systems have provided positive results in their limited application to date in the ATC. The expanded use of MACS and Weaponeer II, in addition to Location of Miss and Hit (LOMAH) device ranges, will have positive effects in the OSUT program, especially for low ability shooters. The recommended sequence of AIM Book, MACS, Weaponeer II, and LOMAH proved effective in the research effort on which this support package is based (Hunt, et al., 1986).

Appendix A of this package includes complete lesson outlines and instructor guides which provide step-by-step methods and procedures to implement the recommended program. Time period restrictions and proficiency gate limits have been purposely omitted to allow for flexibility within its implementation. Minimal training of instructor and key personnel is required.

Upon completion of the instruction, groups would perform the live-fire portion of the current 42-target/42-round record fire scenarios. Soldiers who do not meet the established standard should refire a minimum of one time. Soldiers should be afforded the opportunity to verify the zero of their assigned rifles at the nearest 25 meter range, if necessary, prior to record fire.

The proposed ARM moving target POI was developed using current and modified OSUT lesson outlines. Hard copies of lesson outlines and supporting vu-graphs are included in Appendixes A and B. In addition, the "Notes to Trainer" section was written to introduce the program to personnel selected as rifle instructors and guide them in its implementation (Appendix C). The Notes to Trainer section discusses the purpose, scope, conduct of training, training materials, and evaluation of standards.

#### PROGRAM UTILIZATION

The proposed moving target portion of the USAIS ARM POI incorporates current and recommended institutional training objectives and standards. The USAIS is the proponent agency and if recommendations are accepted, with

subsequent modifications, distribution to infantry units Army-wide could be accomplished.

Two primary benefits will occur as a direct result of this program. First, it will improve the level of individual soldier proficiency in attaining target hits on infantry-type moving targets and secondly, it will increase the overall level of confidence in the capabilities of the service rifle.

## REFERENCES

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APPENDIX A  
LESSON OUTLINE

US ARMY RESEARCH INSTITUTE  
FOR THE BEHAVIORAL AND SOCIAL SCIENCES  
Fort Benning Field Unit  
Fort Benning, Georgia 31905

April 1986

LESSON OUTLINE: ADVANCED RIFLE MARKSMANSHIP

LESSON TITLE: Aid to Improved Marksmanship (AIM) Book

A. ADMINISTRATIVE INSTRUCTIONS:

1. When training will be given: As announced by training schedule.
2. Training location: As announced by training schedule.
3. Who will be trained: Initial Entry Training (IET) Soldiers.
4. Principal and assistant trainers: ARM committee.
5. Training aids: Aid to Improved Marksmanship (AIM) Book and "E" type handout (Encl 1).
6. References: FC 23-11, "Unit Rifle Marksmanship Training Guide" and FM 23-9, "M16A1 Rifle and Rifle Marksmanship."
7. End of block test: None.

B. TRAINING OBJECTIVES:

TASK: Properly select correct aiming point using an Aid to Improved Marksmanship (AIM) Book.

CONDITION: Given an explanation and demonstration, perform practical work using the AIM book.

STANDARD: Correctly apply the single lead rule point of aim on various moving targets.

C. INTERMEDIATE TRAINING OBJECTIVES: None.

D. SEQUENCE OF TRAINING:

1. Introduction: During this period of instruction you will learn to apply the single lead rule using the AIM Book. You will receive a demonstration, explanation, and perform practical work with this valuable

training aid. As a result of this training you will have learned to select the correct lead on moving targets. Knowing how to use the AIM book will enable you to hit moving targets.

2. Explain lead guidance (FC 23-11, pp. 17-1 through 17-13).

NOTE: Post demonstrator/show chart (Encl 1).

- a. Explain Single Lead Rule (FC 23-11, pp. 17-4).
- b. Explain use of the AIM Book.

NOTE: Issue AIM Books and begin practical work. Principal Instructor and Drill Sergeants will assist as required to ensure full understanding of the single lead rule.

3. Perform practical work using the AIM Book.
4. Conclusion:

- a. Recap main points:
  - (1) Single lead rule,
  - (2) Sight picture.
- b. Clarify student questions.

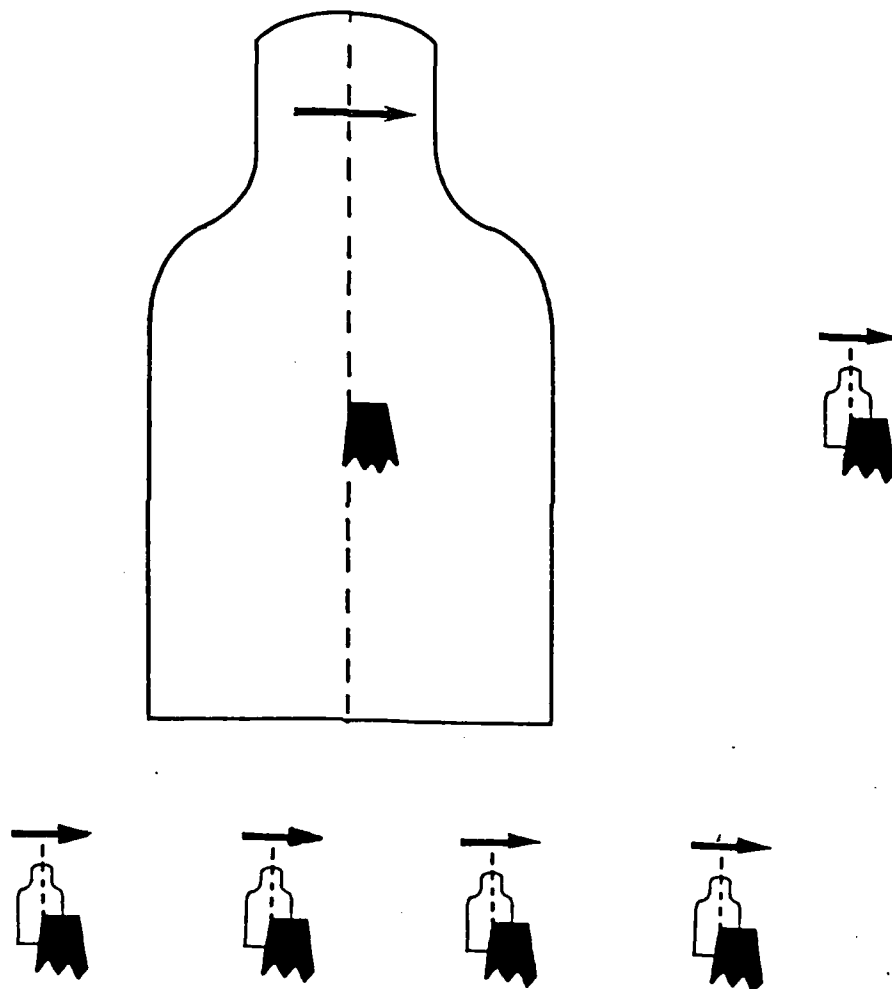
- c. Closing statement: Using the AIM book will teach you to apply the correct amount of lead to a moving target. Remember the enemy will only be stationary after you hit him.

E. SAFETY RESTRICTIONS: None.

F. ADDITIONAL COMMENTS AND INFORMATION: None.

SINGLE LEAD RULE

("E" Type Handout)



Tracking a Moving Target at 150 M

US ARMY RESEARCH INSTITUTE  
FOR THE BEHAVIORAL AND SOCIAL SCIENCES  
Fort Benning Field Unit  
Fort Benning, Georgia 31905

April 1986

LESSON OUTLINE: ADVANCED RIFLE MARKSMANSHIP

LESSON TITLE: Fundamentals of Shooting: The Multipurpose Arcade Combat  
Simulator (MACS)

A. ADMINISTRATIVE INSTRUCTIONS:

1. When training will be given: As announced by training schedule.
2. Training location: As announced by training schedule.
3. Who will be trained: Initial Entry Training (IET) Soldiers.
4. Principal and assistant trainers: ARM committee.
5. Training aids: Aid to Improved Marksmanship (AIM), "E" type handout and MACS devices.
6. References: FC 23-11, "Unit Rifle Marksmanship Training Guide" and FM 23-9 "M16A1 Rifle and Rifle Marksmanship."
7. End of block test: Six targets hit of nine moving target exposures.

B. TRAINING OBJECTIVES:

TASK: Apply the four fundamentals of marksmanship with the MACS device:

1. Steady position,
2. Aiming,
3. Breath control,
4. Trigger squeeze.

CONDITION: In a suitable indoor training area, given the MACS device and a requirement to fire using the MACS while wearing helmet and Load Carrying Equipment (LCE).

STANDARD: Hit six (6) of nine (9) moving targets from the foxhole semisupported position.



C. INTERMEDIATE TRAINING OBJECTIVES: Attain qualification standard of 23 targets hit of 40 stationary target exposures in a Rapid Record Fire Program.

D. SEQUENCE OF TRAINING:

1. Introduction: During this period of instruction each of you will apply the fundamentals of marksmanship. You will be given an explanation, demonstration, and perform practical application using the MACS device. Each of you must be able to apply the four fundamentals of rifle marksmanship in the foxhole semisupported firing position while being coached by an assistant instructor. It is important to know and apply the fundamentals of rifle marksmanship to enable you, the infantryman, to hit your targets on a firing range and battlefield.

2. Fundamentals of Marksmanship:

a. Steady position:

- (1) Adjust sandbags,
- (2) Chest position,
- (3) Nonfiring hand,
- (4) Rifle butt,
- (5) Firing hand,
- (6) Firing elbow,
- (7) Stock weld,
- (8) Stay ready.

b. Aiming,

NOTE: Explain the single lead rule for moving targets.

c. Breath control,

d. Trigger squeeze.

3. Practical Application:

a. Rapid Record Fire Scenario,

b. Moving Target Scenario.

4. Conclusion:

a. Recap main points:

- (1) Fundamentals as they apply to moving targets,
- (2) Foxhole semisupported firing position.

b. Clarify student questions.

c. Closing statement: During this period of instruction each of you has applied the fundamentals of marksmanship to hit moving and stationary targets. Through application of those same techniques you will be successful on the range and more importantly on the battlefield.

E. SAFETY RESTRICTIONS: None.

F. ADDITIONAL COMMENTS AND INFORMATION:

1. Equipment:

- a. One (1) "E" silhouette handout per two (2) students (Encl 1),
- b. Ten Multipurpose Arcade Combat Simulators (MACS).

2. Application:

a. Task: Apply the fundamentals of rifle marksmanship utilizing coaching techniques.

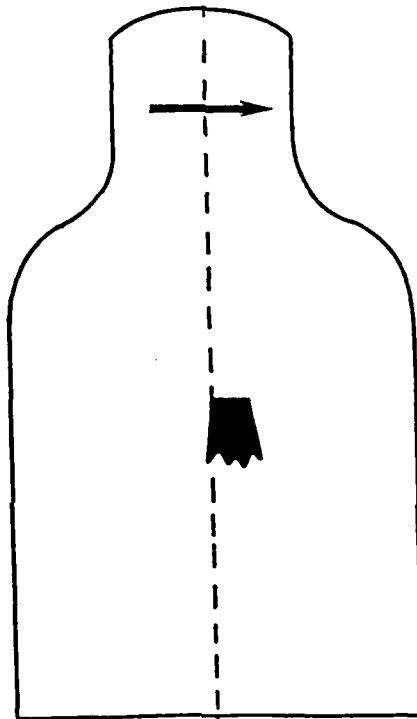
b. Standard: Each soldier must be able to assume a proper semisupported foxhole firing position and apply the fundamentals of marksmanship. Each soldier must attain six (6) of nine (9) targets hit on the Moving Target Scenario.

3. Evaluation: An assistant instructor will assess the ability of each soldier in acquiring his firing position and application of the fundamentals of marksmanship. Observation of this procedure by the instructor will allow necessary corrections to be made during the firing of the MACS device.

4. Firers not meeting the standard will receive additional training and refire.

5. MACS Instructor Guide (Encl 2).

SINGLE LEAD RULE  
("E" Type Handout)



Tracking a Moving Target at 150 M

April 1986

SUBJECT: MULTI-PURPOSE ARCADE COMBAT SIMULATOR MACS INSTRUCTOR GUIDE

1. Review fundamentals of rifle marksmanship and clarify student questions. Emphasize quick detection and reaction to targets. Remind soldier to relay center of lane always and to have both eyes open between target engagements.

Technique of Engagement:

- a. Prepare foxhole position.
- b. Keep both eyes open while maintaining stock weld.
- c. React quickly to target; determine whether it is moving or stationary.
- d. If moving laterally, place the trailing edge of the front sight in the center of mass in the direction of travel of the target (single lead rule sight picture), track the target and begin trigger squeeze immediately. If stationary or if moving directly toward your position, engage with normal sight picture.
- e. After firing, relay to center of lane and scan area for other targets with both eyes open.

2. Instructor will:

- a. Enter: ROSTER NUMBER utilizing keyboard after zeroing.
  - b. Brief student on MACS program.
    - (1) Student prepares foxhole position.
    - \*(2) Student fires three (3) rounds to zero weapon.
    - (3) Student "pulls trigger to continue."
    - \*\* (4) Student engages targets as they appear.
- \*If zero group is too large, repeat zero program.  
\*\*During "replay" of engagement, coach student to ensure successful engagement of subsequent targets (0-100) Evaluating System.

Encl 2

US ARMY RESEARCH INSTITUTE  
FOR THE BEHAVIORAL AND SOCIAL SCIENCES  
Fort Benning Field Unit  
Fort Benning, Georgia 31905

April 1986

LESSON OUTLINE: ADVANCED RIFLE MARKSMANSHIP

LESSON TITLE: Fundamentals of Shooting: Weaponeer II

A. ADMINISTRATIVE INSTRUCTIONS:

1. When training will be given: As announced by training schedule.
2. Training locations: As announced by training schedule.
3. Who will be trained: Initial Entry Training (IET) Soldiers
4. Principal and assistant trainers: ARM Committee
5. Training aids: Aid to Improved Marksmanship (AIM), "F" type handout, and Weaponeer II training devices.
6. References: FC 23-11, "Unit Rifle Marksmanship Training Guide" and FM 23-9 "M16A1 Rifle and Rifle Marksmanship."
7. End of block test: 25 targets hit out of 40 target exposures in Program 14.2.

B. TRAINING OBJECTIVES:

TASK: Apply the four fundamentals of marksmanship and engage targets using the Weaponeer II.

1. Steady position,
2. Aiming,
3. Breath control,
4. Trigger squeeze.

CONDITION: In a suitable indoor training area, given the Weaponeer II device and a requirement to fire the Weaponeer II while wearing helmet and Load Carrying Equipment (LCE), engage targets as they appear.

STANDARD: 25 targets hit of 40 target exposures in Program 14.2

C. INTERMEDIATE TRAINING OBJECTIVES: Programs 00.0 and 7.3.

D. SEQUENCE OF TRAINING:

1. Introduction: During this period of instruction each of you will apply the fundamentals of rifle marksmanship. You will be given an explanation, demonstration, and perform practical application using the Weaponeer II device. Each of you must be able to apply the four fundamentals from the foxhole semisupported firing position while being coached by an assistant instructor. It is important to know and apply the fundamentals of rifle marksmanship to enable you, the infantryman, to hit your targets on the firing range and battlefield.

2. Four Fundamentals:

NOTE: Post demonstrator/show chart #1 (Encl 1).

Review the following:

- a. Steady position,
- b. Aiming with the single lead rule,

NOTE: Remove chart #1.

- c. Breath control,
- d. Trigger control.

3. Practical application:

- a. Foxhole semisupported firing position:
  - (1) Nonfiring hand,
  - (2) Rifle butt,
  - (3) Firing hand,

(4) Firing elbow,

(5) Stock weld,

(6) Stay ready.

b. Courses of fire:

(1) Zero Program (00.0),

(2) Progression Practice Table (7.3),

(3) Record Fire II (14.2).

c. Clarify soldiers' questions.

d. Closing statement: During this period each of you has been instructed on the four fundamentals of rifle marksmanship. By applying the knowledge that you have gained today, you can effectively engage targets both on the firing range and on the battlefield.

E. SAFETY RESTRICTIONS: None.

F. ADDITIONAL COMMENTS AND INFORMATION:

1. Application:

a. Task: Apply the four fundamentals of rifle marksmanship, utilizing the coaching technique.

b. Standard: Each soldier must be able to correctly assume the foxhole semisupported firing position and apply the four fundamentals of rifle marksmanship. Each firer must hit 25 of 40 targets in program 14.2.

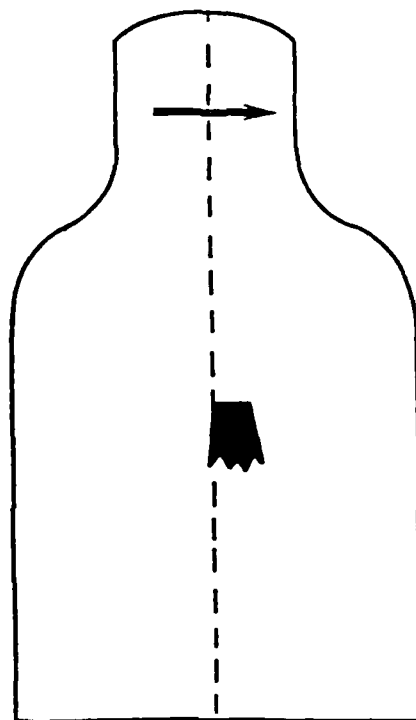
2. Evaluation: A drill sergeant or assistant instructor will evaluate the firer's foxhole semisupported firing position. Each firer must properly apply the four fundamentals: (1) steady position, (2) aiming, (3) breath control, and (4) trigger squeeze.

3. Firers not meeting the minimum standards will receive additional training on the appropriate fundamentals using the Weaponeer II device.

4. Weaponeer II Instructor's Guide (Encl 2).



SINGLE LEAD RULE  
("E" Type Handout)



Tracking a Moving Target at 150 M

Encl 1

April 1986

SUBJECT: WEAPONER II INSTRUCTOR'S GUIDE

PROGRAMS TO BE USED: 00.0, 7.3, 14.2

CLARIFY STUDENT QUESTIONS ON FUNDAMENTALS OF RIFLE MARKSMANSHIP.

EXPLANATION OF PROGRAMS:

"00.0": ZERO PROGRAM

1. Turn on Weaponeer with "POWER" button and depress "PROGRAM" and "LEVEL" buttons to index 00.0 program.
2. Student prepares foxhole position for zeroing using a fully supported firing position.
3. Load rifle with unlimited rounds magazine.
4. Depress "START" button to begin zero program.
5. Student fires 3 rounds without observing monitor screen. Have student fire slowly, emphasize importance of zeroing.
6. After firing 3 shots, observe and analyze shot group on monitor. If shot group is satisfactory (within 4 squares) depress "LEVEL" button to center shot group which electronically zeroes the rifle.
7. Student fires one more round to confirm zero.
8. Repeat steps 4 through 6 if necessary.

NOTE: If necessary to repeat: depress "START" button to restart 00.0 program. At this time, coach student to ensure success.

"7.3": MULTI-SPEED, LEFT & RIGHT STATIONARY AND MOVING

TARGETS WITH "PAUSE"

1. Index 7.3 on Weaponeer II using "PROGRAM" and "LEVEL" buttons.

Encl 2

2. Student prepares foxhole position for engagement of stationary and moving targets of opportunity at random ranges.

3. Issue student unlimited rounds magazine.

4. Student loads weapon upon command.

5. Depress "START" button when student is ready to begin engagement.

6. Student continues to engage targets until a target is missed.

NOTE: When student misses a target Weaponeer II automatically stops the program. The "PAUSE" button will illuminate and the rifle will not fire. The student will be told to "check replay and try again." At this time, explain to the student why he missed, i.e. too low, too high, too much lead, or not enough lead. Prepare the student to continue the program. Depress "PAUSE" button to continue firing. Repeat procedure throughout the program as often as necessary.

7. Upon completion of the program, Weaponeer II will automatically "PRINT" results of engagement performance.

8. Critique student performance, i.e. total shots fired, number of movers hit, number of stationary targets hit and number missed.

"14.2": RECORD FIRE II: MULTI-SPEED TIMED EXERCISE "NO PAUSE"

1. Index program on Weaponeer II using "PROGRAM" and "LEVEL" buttons.

2. Explain scenario (40 random targets consisting of 10 stationary and 30 moving targets, engaged with 40 rounds, one shot per target, NO PAUSE).

3. Student prepares foxhole position to engage stationary and moving targets.

4. Issue students 2 magazines of 20 rounds each.

5. Student loads rifle upon command with one magazine of 20 rounds and prepares to engage targets.

6. Depress "START" button when student is ready.

NOTE: Student makes rapid magazine change and/or applies immediate action when required.

7. Weaponeer II will automatically "PRINT" engagement results.

8. Critique student upon completion of program, i.e. number of stationary targets hit and number of moving targets hit.

US ARMY RESEARCH INSTITUTE  
FOR THE BEHAVIORAL AND SOCIAL SCIENCES  
Fort Benning Field Unit  
Fort Benning, Georgia 31905

April 1986

LESSON OUTLINE: ADVANCED RIFLE MARKSMANSHIP

LESSON TITLE: Fundamentals of Shooting: Location of Miss and Hit (LOMAH)  
device

A. ADMINISTRATIVE INSTRUCTIONS:

1. When will training be given: As announced by training schedule.
2. Training location: As announced by training schedule.
3. Who will be trained: Initial Entry Training (IET) soldiers.
4. Principal and assistant trainers: ARM Committee and Company Cadre.
5. Training aids: LOMAH equipped range, M16A1/A2 rifles & ball ammunition (M193/M855).
6. References: FM 23-9 "M16A1 Rifle and Rifle Marksmanship" and FC 23-11 "Unit Rifle Marksmanship Training Guide."
7. End of Block Test: Ten targets hit of 15 moving target exposures.

B. TRAINING OBJECTIVES:

TASK: Confirm zero and engage fifteen (15) exposures of an "E"-type silhouette moving target.

CONDITIONS: Utilizing assigned rifle and twenty rounds of 5.56 mm ball ammunition, while wearing the required Load Carrying Equipment (LCE), fire from a semisupported foxhole position to engage a silhouette at variable speeds, distances, and direction with semiautomatic fire, using the single lead rule of engagement.

STANDARDS: Attain 10 targets hit out of 15 moving target exposures.

C. INTERMEDIATE TRAINING OBJECTIVES: None.

D. SEQUENCE OF TRAINING:

Introduction: During this period of instruction we will verify the zero of your assigned rifle, apply the four fundamentals of marksmanship, use the single lead rule and engage a moving target with semiautomatic fire at \_\_\_\_ meters.

NOTE: Introduction and Safety Briefing will be given en masse prior to firing order breakout. See Encl 1 for firing sequence and magazine requirements.

E. SAFETY RESTRICTIONS: See USAIC Regulation 210-4.

F. ADDITIONAL COMMENTS AND INFORMATION: LOMAH Instructor's Guide (Encl 1).

April 1986

SUBJECT: Location of Miss and Hit (LOMAH) Instructor's Guide

PROGRAM: Zero Verification	Three (3) Rounds
Zero Confirmation	Two (2) Rounds
Moving Target Engagement	<u>Fifteen (15) Rounds</u>

TOTAL: Twenty (20) Rounds

REVIEW: Range Safety Procedures

Fundamentals of Moving Target Marksmanship

CONDUCT OF FIRE: (\_\_\_ meter "E"-type silhouette using short range sight)

1. Student prepares foxhole position for zeroing.
2. Issue student one (1) magazine of three (3) rounds.
3. Student loads on command.
4. Student fires three (3) rounds at the stationary "E" silhouette from a fully supported position without observing screen.
5. Student and instructor observe monitor.
6. Student makes sight adjustment if necessary.
7. Issue the student one (1) magazine of seventeen (17) rounds.
8. Student fires two (2) rounds to confirm zero. Allow student to observe monitor screen.
9. Student places weapon on "safe."
10. Student places weapon on V-notch stake.
11. Student prepares foxhole position to engage moving target.
12. Student removes weapon from V-notch stake.

Encl 1

13. When student is "ready" - instructor signals to operator to start engagement.

14. Student may observe screen at any time during engagement.

15. Instructor is encouraged to "coach" firer throughout engagement.

CONCLUSION OF FIRING:

1. Firer clears weapon: Magazine out, bolt to the rear, weapon on "safe," and inspects chamber.

2. Instructor will observe firer and "rod" the barrel.

3. Instructor clarifies student questions and informs firer of total number of hits (shots 6 thru 20).

4. Firer departs foxhole.

\*\*\*REPEAT PROCEDURE FOR EACH STUDENT\*\*\*

NOTE: Alternate instructor replaces primary instructor as required.

Concurrent training to be conducted: Rapid Magazine Change, and Immediate Action.



## ANNEX

### SAFETY BRIEFING

NOTE: This safety briefing is to be read verbatim. It is not to be generalized or paraphrased in any manner, and only those soldiers who receive this safety briefing will be authorized to fire on the range.

1. The first priority of this range is safety: All of the following safety procedures will be followed, always. Anyone found or caught not adhering to these set rules will be removed from this range immediately by your drill sergeant.
2. The two red and white candy striped poles, located on the far right and far left, (point to them) are the range left and right limits. At no time will you fire or point your weapon outside the limits of these poles.
3. Anytime you are in possession of your weapon while on the firing line, the selector lever will be on "SAFE," the bolt will be locked to the rear, and dust cover open (Demonstrate).
4. You will always enter and exit the firing line at the base of the tower and between the two red colored poles (Point).
5. You will always maintain your weapon up and down range whenever you are on the firing line; never place your finger within the trigger housing area (Demonstrate).
6. Remember, on the firing line your bolt is locked to the rear, and the weapon in on safe, always!
7. You will never smoke on or near the firing line, but only in designated smoking areas. (Inform them where.)
8. You will never eat or drink on the firing line unless the tower permits you to drink from your canteen. Inform the nearest instructor if you need water.

9. You will never physically touch your weapon in any manner while there are still personnel down range in front of the firing line, not even to make sight changes.
10. You will load your magazine into the weapon only on the command of the tower.
11. You will not be permitted to fire without ear plugs inserted in your ears.
12. Before you are permitted to leave the firing line your weapon must be rodged by the Safety NCO, regardless of whether you have fired your weapon or not. There are no exceptions to this rule.
13. You are to consider your weapon loaded at all times, even in the break areas, so never point the weapon at anyone or anything; never play with your weapon.
14. When you are on the range, but not on the firing line you will carry your weapon slung across your back with the muzzle facing skyward or up (Demonstrate).
15. While on this range your selector lever on your weapon will always remain on SAFE, unless you are told otherwise by the tower only.
16. Left-handed firers will not be permitted to fire without left-handed brass deflectors attached to the weapon.
17. Anyone observing an unsafe act will immediately place his weapon on SAFE, place it in the V-notch stake and then give both the vocal alarm and visual signal of cease fire. (Demonstrate and have soldiers demonstrate.) If you are another firer and you observe this going on, then you are to place your weapon on SAFE, place it in the V-notch stake and begin the cease fire procedures. This will continue until all personnel on the firing line are doing this and will not cease until commanded by the range tower.

18. Once you have been cleared off the firing line you will report immediately to the ammunition point and turn-in all ammo and expended brass.

19. No one will leave this range until he has been shaken down by either an NCO or Drill Sergeant for ammo and brass. Anyone caught with ammo or brass in his possession after he has given his "No Brass, No Ammo, Sergeant" declaration is susceptible to disciplinary punishments under the Uniform Code of Military Justice.

20. Here we have numerous varieties of poisonous snakes. Most common found on the ranges are copperhead, rattlesnake, coral snake and water moccasin. These snakes are usually found in cool places in the summer (foxholes, under sandbags, logs, etc.). Always observe an area very closely and avoid. Do not bother the snakes. In the event that you are bitten, report it to the range personnel, do NOT attempt to handle the snake.

21. Electrical Storms (when appropriate): When an electrical storm occurs the Safety NCO will direct the tower operator to prepare to disperse soldiers. At that time the tower will give the command To Lock and Clear all Weapons and Ground All Equipment (except for wet weather gear). The tower operator will direct soldiers to a safe area.

22. Heat Casualties (when appropriate): The environment is extremely hot with a high humidity. Because of the high humidity the body's perspiration cannot evaporate and cool the body. Should you or your buddy have the following symptoms: Cool, moist or hot, dry skin, profuse sweating, headaches, dizziness, weakness, rapid pulse or severe cramps in abdomen or legs - make the Range Cadre or AIs aware. These are symptoms of a possible heat casualty.

23. Cold Weather Injuries (when appropriate): Range OICs will ensure that warm-ups are properly utilized. Ten (10) minute breaks will be scheduled for

each 60-minute block of instruction. During conference sessions, individuals should be allowed to move their feet, hands, etc., in order to maintain circulation. Adequate dry clothing is the key to prevention of cold weather injuries. Supervisors at every level will ensure that their subordinates are adequately protected during cold weather. Range OICs will coordinate with company personnel to rotate soldiers into warm up tents when inclement weather conditions dictate the need for this to preserve troop health.

24. Demonstrate Immediate Action.

25. Demonstrate Remedial Action.

26. Briefly mention the Pop and No Kick possibility.

27. Are there any questions concerning this range's safety procedures?

US ARMY RESEARCH INSTITUTE  
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Fort Benning, Georgia 31905

April 1986

LESSON OUTLINE: ADVANCED RIFLE MARKSMANSHIP

LESSON TITLE: Defense Test Range (DTR)

A. ADMINISTRATIVE INSTRUCTIONS:

1. When training will be given: As announced by training schedule.
2. Training location: Malone 18.
3. Who will be trained: Initial Entry Training (IET) Soldiers.
4. Principal and assistant trainers: ARM Committee.
5. Training aids: See Annex A.
6. References: FC 23-11, "Unit Rifle Marksmanship Training Guide," Aid to Improved Marksmanship (AIM) Book, and FM 23-9 "M16A1 Rifle and Rifle Marksmanship."
7. End of block test: None.

B. TRAINING OBJECTIVES:

TASK: Engage RETS moving and stationary targets with live-fire.

CONDITION: During daylight hours while wearing steel helmet, Load Carrying Equipment (LCE), using an M16A1 rifle with two (2) magazines, and 42 rounds of 5.56 mm ball ammunition.

STANDARD: Achieve 18 targets hit of 42 target exposures at distances from 35 to 300 meters.

C. INTERMEDIATE TRAINING OBJECTIVES:

TASK: Perform a rapid magazine change (Reference FM 23-9, p. 87, para. 5.3 and p. 113).

CONDITIONS: Given an operational M16 rifle and two magazines.

STANDARD: Perform the rapid magazine change as quickly as possible.

TASK: Reduce a malfunction or stoppage (Reference FM 23-9, p. 88, para.

5.4.)

CONDITION: Given an M16 rifle and a magazine of 10 blank and 2 dummy rounds.

STANDARD: Clear stoppage and fire as quickly as possible.

TASK: Detect targets in sector of fire.

CONDITIONS: Without assistance, detect targets of opportunity within sector of fire as they appear during the scenario at ranges of 35 meters to 300 meters.

STANDARD: Identify and engage targets as they appear in their lane.

D. SEQUENCE OF TRAINING:

1. Introduction: During this period of instruction each of you will be required to engage moving and stationary targets at distances of 35 meters through 300 meters. You will each engage targets from a foxhole fighting position as they appear in your lane without assistance. It is your responsibility to perform a rapid magazine change and apply immediate action in the event of a malfunction. This facility is designed to test you as infantrymen and you must apply all previous training to be successful.

2. Remoted Target System:

a. Target sequence, exposure time, and duration of movement are all computer controlled. Targets hit for each lane are automatically recorded for each target range.

NOTE: Post demonstrator for live-fire demonstration.

b. Live-fire demonstration.

3. Moving Target Training: Break company down into groups. One principal instructor will be assigned to each group. Each assistant instructor will teach is assigned group in sequence; Rapid Magazine Change, Immediate Action, and Dry Fire Mover. All training will be completed in \_\_\_\_ minutes. Breaks will be taken between classes.

- a. Rapid Magazine Change (Encl 1, Annex A)
- b. Immediate Action (Encl 2, Annex A).
- c. Dry Fire Mover (Encl 3, Annex A).

4. Conclusion:

- a. Recap main points.
  - (1) Remoted Target System,
  - (2) Lead guidance,
  - (3) Position,
  - (4) Principles of moving target engagement,
  - (5) Aid to Improved Marksmanship,
  - (6) Dry Fire Mover.
- b. Clarify student questions.
- c. Closing statement: Your success today proves that you are ready to take your place among those soldiers who guard this country as "INFANTRYMEN."

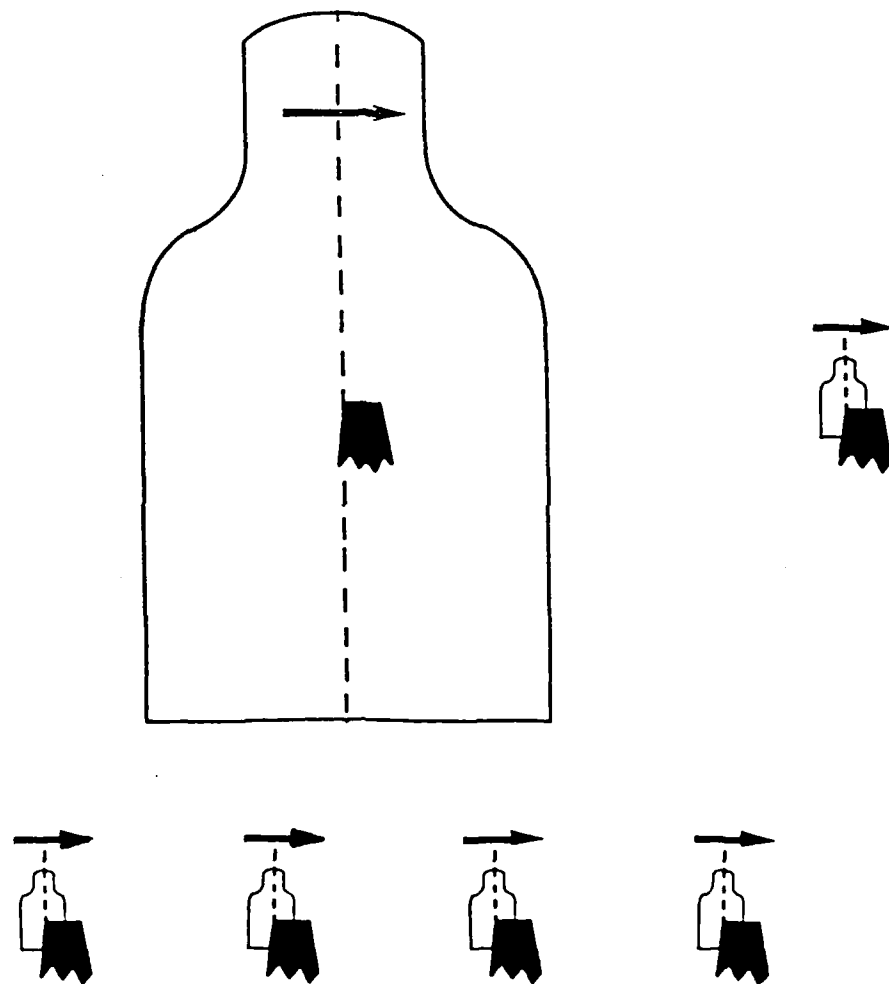
5. Moving Target Live-Fire:

- a. Safety briefing,
- b. Firer order breakdown,
- c. Live fire 42/42 scenario.

E. SAFETY RESTRICTIONS: See USAIC Regulation 210-4.

F. ADDITIONAL COMMENTS AND INFORMATION: None.

SINGLE LEAD RULE  
("E" Type Handout)



Tracking a Moving Target at 150 M



ANNEX A

Training Aids and Equipment

3 dry fire movers with 100 feet extension cord  
1 range flag  
2 magazines per soldier  
1 PRC-77 with components  
42 rounds of 5.56 mm ball ammunition per firer  
12 rounds of 5.56 mm blank ammunition per firer  
2 dummy rounds of 5.56mm per firer  
2 Lister bags  
5 5-gallon water cans  
2 cleaning rods  
1 GE radio  
1 Blank Adapter per firer  
1 First Aid Kit  
2 Smoke Grenades for MEDEVAC  
15 rounds of 5.56 ball ammunition per firer (35% refires)  
42 rounds of 5.56 ball ammunition per demonstration

Rapid Magazine Change

- 1 M16 and two magazines per soldier
- 2 rounds of 5.56 mm blank per soldier
- 1 blank adapter per soldier

Encl 1 to Annex A

Immediate Action

1 M16 and two magazines per soldier

2 rounds of 5.56 mm dummy and 10 rounds of 5.56 mm blank per soldier

1 blank adapter per soldier

Encl 2 to Annex A

Dry Fire Mover

26 standing semisupported firing positions

3 Dry Fire Movers with 100 feet extension cord each.

Encl 3 to Annex A

## ANNEX B

### SAFETY BRIEFING

NOTE: This safety briefing is to be read verbatim. It is not to be generalized or paraphrased in any manner, and only those soldiers who receive this safety briefing will be authorized to fire on the range.

1. The first priority of this range is safety: All of the following safety procedures will be followed, always. Anyone found or caught not adhering to these set rules will be removed from this range immediately by your drill sergeant.
2. The two red and white candy striped poles, located on the far right and far left, (point to them) are the range left and right limits. At no time will you fire or point your weapon outside the limits of these poles.
3. Anytime you are in possession of your weapon while on the firing line, the selector lever will be on "SAFE," the bolt will be locked to the rear, and dust cover open (Demonstrate).
4. You will always enter and exit the firing line at the base of the tower and between the two red colored poles (Point).
5. You will always maintain your weapon up and down range whenever you are on the firing line; never place your finger within the trigger housing area (Demonstrate).
6. Remember, on the firing line your bolt is locked to the rear, and the weapon in on safe, always!
7. You will never smoke on or near the firing line, but only in designated smoking areas. (Inform them where.)
8. You will never eat or drink on the firing line unless the tower permits you to drink from your canteen. Inform the nearest instructor if you need water.

9. You will never physically touch your weapon in any manner while there are still personnel down range in front of the firing line, not even to make sight changes.
10. You will load your magazine into the weapon only on the command of the tower.
11. You will not be permitted to fire without ear plugs inserted in your ears.
12. Before you are permitted to leave the firing line your weapon must be rodded by the Safety NCO, regardless of whether you have fired your weapon or not. There are no exceptions to this rule.
13. You are to consider your weapon loaded at all times, even in the break areas, so never point the weapon at anyone or anything; never play with your weapon.
14. When you are on the range, but not on the firing line you will carry your weapon slung across your back with the muzzle facing skyward or up (Demonstrate).
15. While on this range your selector lever on your weapon will always remain on SAFE, unless you are told otherwise by the tower only.
16. Left-handed firers will not be permitted to fire without left-handed brass deflectors attached to the weapon.
17. Anyone observing an unsafe act will immediately place his weapon on SAFE, place it in the V-notch stake and then give both the vocal alarm and visual signal of cease fire. (Demonstrate and have soldiers demonstrate.) If you are another firer and you observe this going on, then you are to place your weapon on SAFE, place it in the V-notch stake and begin the cease fire procedures. This will continue until all personnel on the firing line are doing this and will not cease until commanded by the range tower.

18. Once you have been cleared off the firing line you will report immediately to the ammunition point and turn in all ammo and expended brass.

19. No one will leave this range until he has been shaken down by either an NCO or Drill Sergeant for ammo and brass. Anyone caught with ammo or brass in his possession after he has given his "No Brass, No Ammo, Sergeant" declaration is susceptible to disciplinary punishments under the Uniform Code of Military Justice.

20. Here we have a numerous amount of poisonous snakes. Most common found on the ranges are copperhead, rattlesnake, coral snake and water moccasin. These snakes are usually found in cool places in the summer (foxholes, under sandbags, log, etc.). Always observe an area very closely and avoid. Do not bother the snakes. In the event that you are bitten, report it to the range personnel, do NOT attempt to handle the snake.

21. Electrical Storms (when appropriate): When an electrical storm occurs the Safety NCO will direct the tower operator to prepare to disperse soldiers. At that time the tower will give the command To Lock and Clear all Weapons and Ground All Equipment (except for wet weather gear). The tower operator will direct soldiers to a safe area.

22. Heat Casualties (when appropriate): The environment is extremely hot with a high humidity. Because of the high humidity the body's perspiration cannot evaporate and cool the body. Should you or your buddy have the following symptoms: Cool, moist or hot, dry skin, profuse sweating, headaches, dizziness, weakness, rapid pulse or severe cramps in abdomen or legs - make the Range Cadre or AIs aware. These are symptoms of a possible heat casualty.

23. Cold Weather Injuries (when appropriate): Range OICs will ensure that warm-ups are properly utilized. Ten (10) minute breaks will be scheduled for

each 60-minute block of instruction. During conference sessions, individuals should be allowed to move their feet, hands, etc., in order to maintain circulation. Adequate dry clothing is the key to prevention of cold weather injuries. Supervisors at every level will ensure that their subordinates are adequately protected during cold weather. Range OICs will coordinate with company personnel to rotate soldiers into warm up tents when inclement weather conditions dictate the need for this to preserve troop health.

24. Demonstrate Immediate Action.

25. Demonstrate Remedial Action.

26. Briefly mention the Pop and No Kick possibility.

27. Are there any questions concerning this range's safety procedures?



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Fort Benning, Georgia 31905

April 1986

LESSON OUTLINE: ADVANCED RIFLE MARKSMANSHIP

LESSON TITLE: Reinforcement Training for Rapid Magazine Change

A. ADMINISTRATIVE INSTRUCTIONS:

1. When training will be given: As announced by training schedule.
2. Training location: As announced by the training schedule.
3. Who will be trained: Initial Entry Training (IET) Soldiers.
4. Principal and assistant trainers: ARM Committee.
5. Training aids: M16A1 rifle w/2 magazines loaded with 1 blank round each, and blank adapter.
6. References: FC 23-11, "Unit Rifle Marksmanship Training Guide" and FM 23-9 "M16A1 Rifle and Rifle Marksmanship."
7. End of block test: None.

B. TRAINING OBJECTIVES:

TASK: Accomplish a rapid magazine change.

CONDITION: Given an operational M16A1 rifle and two magazines with one round each of M200 blank ammunition, the soldier will "LOAD AND FIRE" one (1) round upon command of principal/assistant instructor one round, without further command, remove empty magazine, insert loaded magazine, aim and fire his weapon.

STANDARD: Perform rapid magazine change and fire his weapon in \_\_ seconds or less.

C. INTERMEDIATE OBJECTIVES: None

D. SEQUENCE:

NOTE: Post demonstrator.

NOTE: Fully operational M16 series rifles will lock the bolt to the rear when last round is fired.

Right Handed Firer:

1. Remove index finger from trigger and depress the magazine release catch while maintaining secure grip on the rifle.

2. Simultaneously grasp and remove empty magazine with the left hand. Place the empty magazine on the ground.

3. Secure loaded magazine with left hand, with rounds "up and forward."

4. Insert loaded magazine into the magazine well and "tap" upwards with the palm of left hand to ensure that magazine is fully seated and locked into the weapon.

5. Depress the "bolt release" with the thumb of the left hand. The bolt will go forward and seat the first round for firing.

6. Return left hand to its original firing position on the hand guard.

NOTE: Use right hand to tap bolt assist if necessary to seat first round.

7. Return index finger to the trigger, aim, and fire.

NOTE: The safety is not used during a rapid magazine change. Assistant instructors must ensure the firer maintains a safe posture during the conduct of a rapid magazine change.

Left Handed Firers:

1. Remove right hand from the hand guard and depress the magazine release catch with the thumb of the right hand. Simultaneously grasp the empty magazine with the right hand and place it on the ground.

2. Secure the loaded magazine with the right hand, "rounds up and forward" and insert into the magazine well. Tap "upwards" with the palm of the right hand to ensure the magazine is fully seated and locked into the weapon.

3. Using the right hand, fingers extended and joined, reach over the carrier handle and depress the bolt release catch allowing the bolt to go forward, seating the first round.

NOTE: Use right hand tap bolt assist if necessary to fully seat first round.

4. Return the right hand to firing position, aim and fire.

NOTE: The safety is not engaged during a rapid magazine change. Assistant instructors must ensure that firers maintain a safe posture during conduct of a rapid magazine change.

NOTE: Release demonstrator.

E. STUDENT PRACTICAL WORK.

F. CONCLUSIONS:

1. Clarify student questions.

2. Closing statement: Without the ability to perform a rapid magazine change, rapid fire, automatic fire, and suppressive fire is impossible!

G. SAFETY RESTRICTIONS: USAIC Regulation 210-4.

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Fort Benning, Georgia 31905

April 1986

LESSON OUTLINE: ADVANCED RIFLE MARKSMANSHIP

LESSON TITLE: Reinforcement Training for Immediate Action

A. ADMINISTRATIVE INSTRUCTIONS:

1. When training will be given: As announced by training schedule.
2. Training location: As announced by the training schedule.
3. Who will be trained: Initial Entry Training (IET) Soldiers.
4. Principal and assistant trainers: ARM Committee.
5. Training aids: M16A1 rifle, 2 magazines, dummy rounds, blank ammunition, and blank adapter.
6. References: FC 23-11, "Unit Rifle Marksmanship Training Guide" and FM 23-9 "M16A1 Rifle and Rifle Marksmanship."
7. End of block test: None.

B. TRAINING OBJECTIVES:

TASK: Reduce a stoppage and continue to fire.

CONDITION: Given an M16A1 rifle and a magazine of 10 blank and 2 dummy rounds assume a foxhole semisupported position, fire upon command and reduce stoppages as they occur.

STANDARD: Accomplish task within \_\_ seconds without assistance.

NOTE: Magazines will be loaded with ten blank rounds and two dummy rounds in a random order by peers.

C. INTERMEDIATE OBJECTIVES: None.

D. SEQUENCE: Steps in Immediate Action:

1. Slap (tap) upwards on magazine to ensure it is fully seated in magazine well with the nonfiring hand. (Tap is more appropriate, as a hand slap can cause double feed problems.) Tilt rifle ejection port towards ground approximately 45 degrees.

2. Using firing hand pull charging handle all the way to the rear.

3. Observe for extraction and ejection of cartridge.

4. Release the charging handle.

5. Tap bolt assist with the heel of firing hand to ensure bolt assembly is fully seated.

6. Aim and attempt to fire.

NOTE: Immediate Action procedure must be performed in sequence. If rifle fails to fire, perform Remedial Action. Reload rifle and continue to fire. Assistance by safety personnel should be minimal. Key word is SPORTS.

E. PRACTICAL EXERCISE

F. CONCLUSION:

1. Clarify student questions.

2. Closing statement: Your rifle is one of the finest in the world today, however, stoppages can occur. Your life depends on your ability to correct those malfunctions.

G. SAFETY RESTRICTIONS: USAIC Regulation 210-4.

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April 1986

LESSON OUTLINE: ADVANCED RIFLE MARKSMANSHIP

LESSON TITLE: Dry Fire Mover

A. ADMINISTRATIVE INSTRUCTIONS:

1. When training will be given: As announced by training schedule.
2. Training location: Malone 18.
3. Who will be trained: Initial Entry Training (IET) Soldiers.
4. Principal and assistant trainers: ARM Committee.
5. Training aids: Dry Fire Mover, extension cord, and foxhole stands.
6. References: FC 23-11, "Unit Rifle Marksmanship Training Guide" and FM 23-9, "M16A1 Rifle and Rifle Marksmanship."
7. End of block test: None.

B. TRAINING OBJECTIVES:

TASK: To dry fire on Dry Fire Mover.

CONDITIONS: During daylight hours in a concurrent training area given an explanation and demonstration each soldier will perform practical exercise in tracking a moving target and perform a rapid magazine change upon command.

STANDARD: To demonstrate ability to engage a moving target while dry firing.

C. INTERMEDIATE TRAINING OBJECTIVES: None.

D. SEQUENCE OF TRAINING:

1. Introduction: During this period of instruction you will apply the necessary modifications of the fundamentals of marksmanship you have been

taught to engage a moving target. Engaging a moving target is not impossible however, you must know and be able to apply the techniques which will allow you to be successful.

2. Dry Fire Mover:

NOTE: Post demonstrator.

- a. Foxhole semisupported position.
- b. Rapid magazine change.

NOTE: Demonstrate the Dry Fire Mover.

NOTE: Release demonstrator.

3. Practical Exercise

4. Conclusion:

- a. Recap main points.
- b. Clarify student questions.
- c. Closing statement: By applying the techniques you have learned

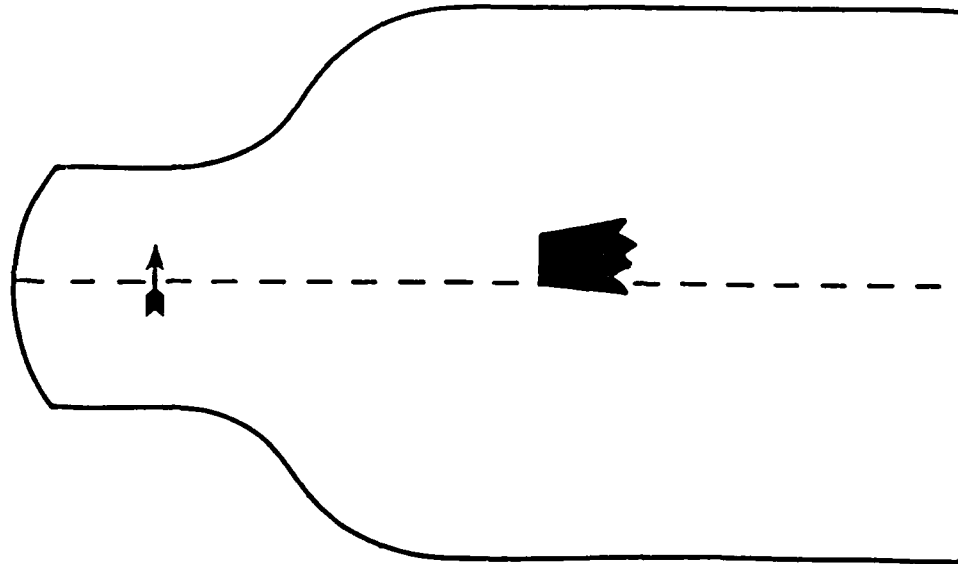
today you will be able to engage any moving target effectively.

E. SAFETY RESTRICTIONS: USAIC Regulation 210-4.

F. ADDITIONAL COMMENTS AND INFORMATION: None.

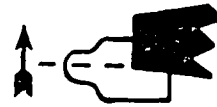
APPENDIX B  
LIST OF VU-GRAPHS

MOVING TARGET SINGLE LEAD RULE



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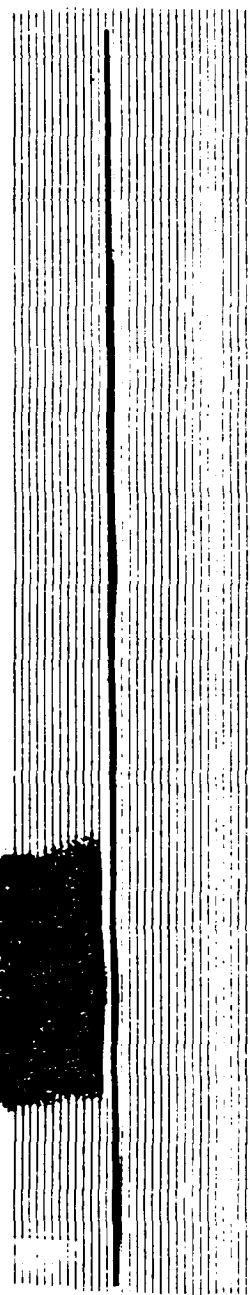
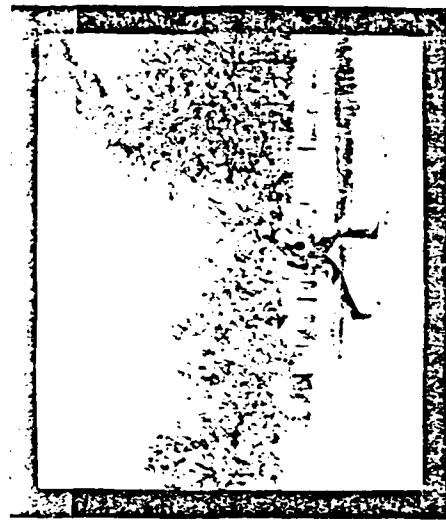
"PLACE THE TRAILING EDGE OF THE FRONT SIGHT AT TARGET CENTER  
IN THE DIRECTION THE TARGET IS MOVING"





Range - 75 meters

Running

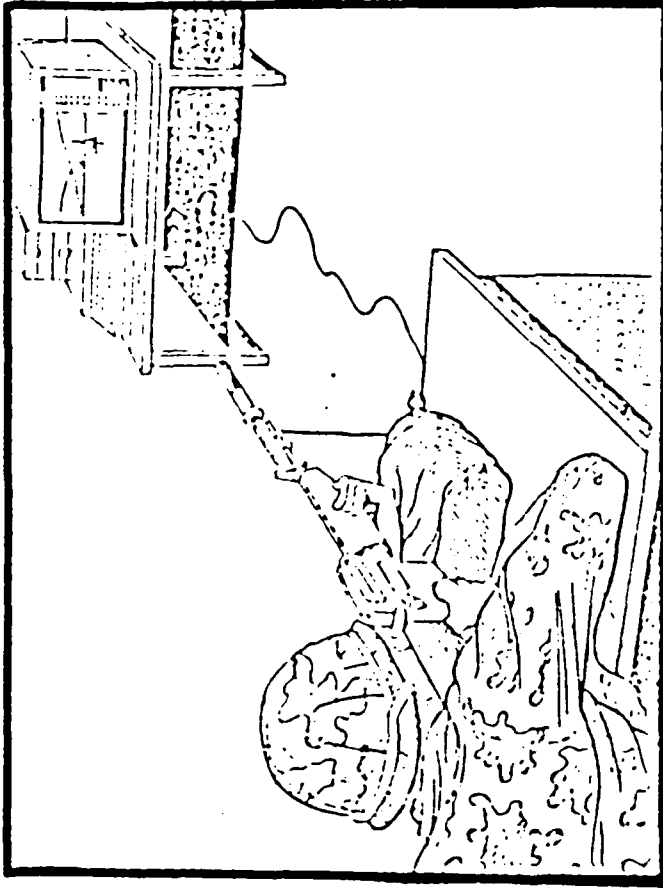


THE PURPOSE OF THE AIM BOOK IS TO TEACH SOLDIERS HOW TO APPLY THE SINGLE-LEAD RULE AND SUCCESSFULLY ENGAGE MOVING TARGETS AT RANGES OUT TO 200 METERS. THE SINGLE-LEAD RULE IS TO PLACE THE TRAILING EDGE OF THE FRONT SIGHT POST ON THE CENTER OF MASS IN THE DIRECTION OF TARGET TRAVEL. THE DOT ON THE ENEMY SOLDIER DEPICTS THE STRIKE OF THE BULLET. THE AIM BOOK DEPICTS A SOLDIER AT RANGES OF 75, 125, AND 185 METERS EITHER WALKING OR RUNNING.

AID TO IMPROVED MARKSMANSHIP (AIM)

TA 154-86A

# MULTIPURPOSE ARCADE COMBAT SIMULATOR (MACS)



## PROGRAMS

### ZEROING:

5 ROUNDS AT 250 METERS

### RAPID RECORD FIRE:

40 TARGETS -- 50 TO 300 METERS

18 SINGLE EXPOSURES IN 35.3 SECONDS

11 DOUBLE EXPOSURES IN 33.3 SECONDS

STANDARD: 25 TARGET HITS/40 EXPOSURES

### MOVING TARGETS:

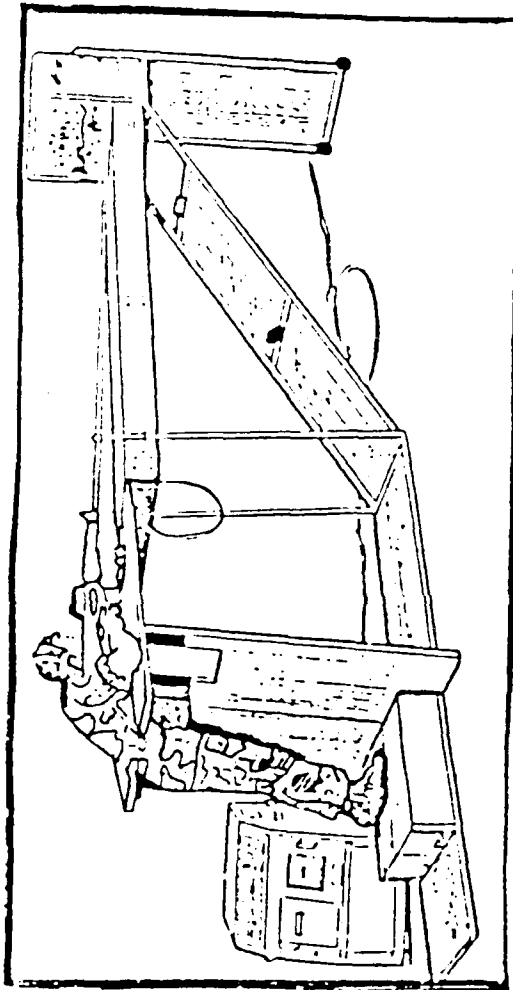
9 TARGETS -- 75, 125 AND 185 METERS

2-5 SECOND SINGLE EXPOSURES -- 3 DIFFERENT SPEEDS AT EACH RANGE

STANDARD: 6 TARGET HITS/9 EXPOSURES

TA 154-86A

## WEAPONER II



### PROGRAMS

#### ZEROING:

9 ROUNDS AT 250 METERS

#### KNOWN TARGET:

4 TARGET EXPOSURES AT EACH RANGE

"PROGRESSION" SCENARIO WITH PAUSE 50, 100, 150 and 250 METERS  
STATIONARY, WALKING, JOGGING, AND RUNNING AT EACH RANGE  
STANDARD: ONE TARGET HIT AT EACH RANGE

#### SIMULATED RETS SCENARIO:

40 TARGETS--50 TO 300 METERS

10 STATIONARY--2 TO 5 SECONDS

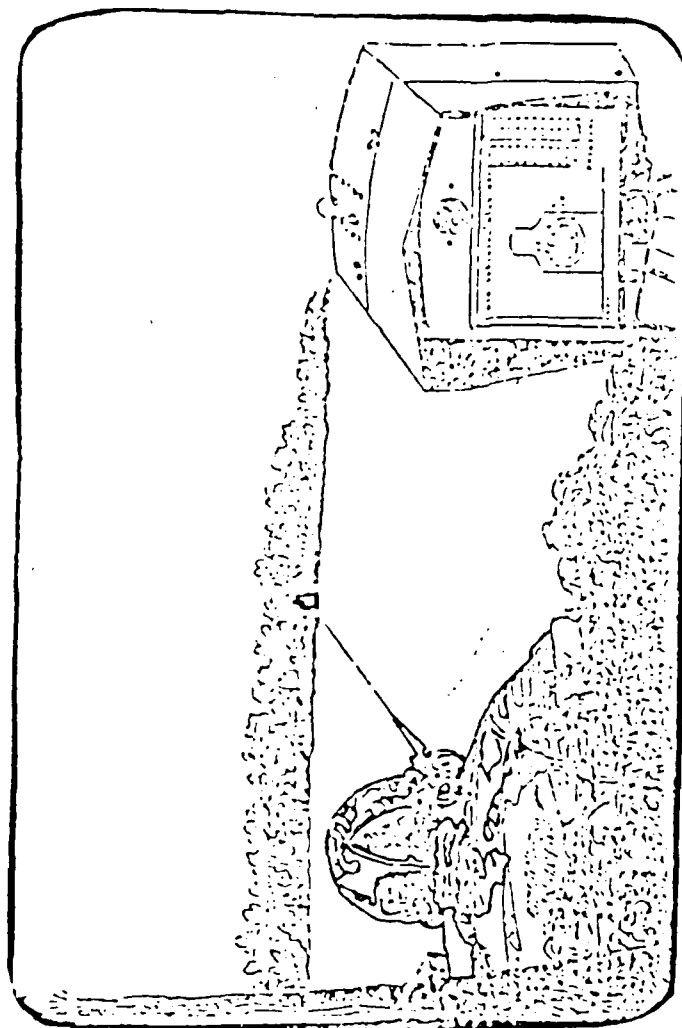
20 MOVING LEFT OR RIGHT -- 3 TO 5 SECONDS

STANDARD: 25 TARGET HITS/40 EXPOSURES

TOTAL TIME: 232 SECONDS

TA 154-86A

# LOCATION OF MISS AND HIT (LOMAH)



## PROGRAM:

RANGE 100 METERS

### STATIONARY

3 ROUNDS ZERO WITH SIGHT CHANGE, IF NEEDED

2 ROUNDS ZERO CONFIRMATION

### MOVING - LEFT AND RIGHT

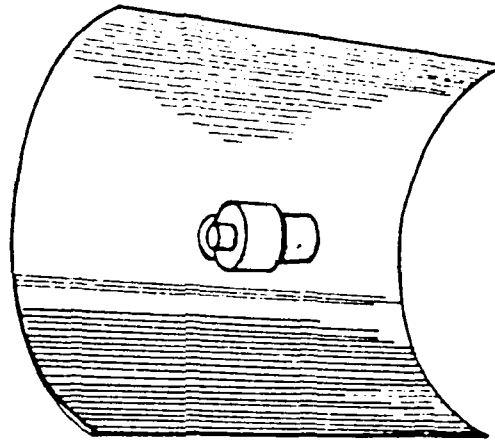
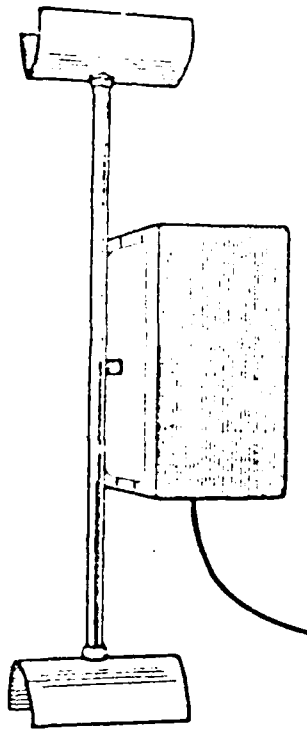
5 ROUNDS SPEED 1 -- 9 1/4 SECOND EXPOSURE

5 ROUNDS SPEED 2 -- 5 3/4 SECOND EXPOSURE

5 ROUNDS SPEED 3 -- 5 SECOND EXPOSURE

STANDARD: 10 TARGET HITS/15 EXPOSURES

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THIS DEVICE IS USED DURING MOVING TARGET PREPARATORY MARKSMANSHIP TRAINING. IT ROTATES UNDER THE POWER OF A SMALL ROTISSERIE-TYPE MOTOR WITH A SCALED TARGET LOCATED ON EITHER END. SOLDIERS FORM A CIRCLE AROUND THE DEVICE AND SIMULATE ENGAGING THE TARGET EACH TIME IT COMES BY. THIS DEVICE WAS BUILT BY THE TRAINING AIDS SUPPORT CENTER (TASC) AT FORT BENNING, GEORGIA.

#### DRY FIRE MOVING TARGET TRAINER

TA 154-86A

APPENDIX C  
NOTES TO TRAINERS

PURPOSE

This instructional package is designed to provide standardized and comprehensive training methods and techniques for use in teaching the Infantry One Station Unit Training (OSUT) soldier to engage moving targets with his rifle. It is concerned with instructing those critical marksmanship skills and principles that, when properly applied, will ensure success on the battlefield.

SCOPE

This training package encompasses all aspects of rifle marksmanship training applicable to moving target engagement. It incorporates approved and proposed training objectives and standards which are presented in the Infantry One Station Unit Training (OSUT) program of instruction for moving target training. Instructional subjects include:

- a. Zero Verification
- b. AIM Book Training
- c. Foxhole Preparation
- d. Target Detection
- e. Immediate Action
- f. Rapid Magazine Change
- g. Multipurpose Arcade Combat Simulator (MACS)
- h. Weaponner II
- i. Location of Miss and Hit Device (LOMAH)

CONDUCT OF TRAINING

The instructional format of this training program has been developed to accommodate situationally focused instruction during the proposed training time. It consists of 16 hours of instruction that begins with a review of critical BRM skills and progresses systematically, teaching other skills necessary to engage moving targets. It is recommended that the proposed block of instruction be given in sequence and in its entirety.

TRAINING MATERIALS

- a. Required for Instruction. All necessary lesson outlines and hard copies of supporting Vu-graphs are provided in the training package.

b. Reinforcement Training. Reinforcement Training will be given using the primary training aids provided in the package. It is imperative that soldiers fully understand and can apply all critical skills prior to live fire.

#### EVALUATION OF STANDARDS

The proposed ARM program should embody a minimum of three (3) skill proficiency gates (i.e., recommended standards for MACS, Weaponeer II, and LOMAH). Soldiers will demonstrate their abilities to perform to standard at the end of each block of instruction. While qualification is not a requirement for OSUT graduation at the current time, training records should reflect moving target training performance on the Defense Test Range (DTR) Remoted Target Systems (RETS) course. A minimum of 18 target hits will be noted as "satisfactory." Soldiers who do not meet this standard should refire the course a minimum of one time.